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Comparison of horseshoe crabs (Tachypleus gigas) morphometry between different populations using allometric analysis (Article)

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Abstract

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Studies on horseshoe crabs morphometrics found that they have maintained their descendent features from the Late Ordovician Period to present day. In the present study, we applied the allometric study to evaluate the correlation of body growth in three populations of the Asian horseshoe crab (Tachypleus gigas) collected from Balok (Pahang), Cherok Paloh (Pahang) and Merlimau (Melaka), Malaysia, coastal areas. The aims of this study are to examine the logarithmic growth of horseshoe crabs between three populations by analyzing the variation of their body weight (BW), carapace length (CL), carapace width (CW) and telson length (TEL) to determine their growth and maturity. Their body parameters were analyzed by the allometric method. There are no significant differences between males weight in all populations ($p>0.05$). However, females from Merlimau were smallest (BW: 519.7 ± 66.3 g; CL: 21.1 ± 1.1 cm; CW: 19.6 ± 0.9 cm) among the three populations; Balok (BW: 928.5 ± 123.2 g; CL: 23.8 ± 1.0 cm; CW: 23.3 ± 1.0 cm) and Cherok Paloh (BW: 939.8 ± 125.7 g; CL: 25.4 ± 1.5 cm; CW: 25.1 ± 1.6 cm). Males and females of T. gigas in Merlimau could be classified as less matured among Balok and Cherok Paloh, since the increment of CL/CW were higher than their BW. Further study on T. gigas allometry along Malaysian coastal area is needed to understand the variation growth between populations. The study could be an alarming condition to a particular T. gigas population. © 2018, BIOFLUX SRL. All rights reserved.

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Body weight Carapace length Logarithmic growth Maturity Telson length

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